

Exhibit

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Deposition of:
Marc Hodes , Ph.D.

November 2, 2020

In the Matter of:
**CoolIT Systems, Inc. v. Asetek
Danmark A/S**

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1 UNITED STATES PATENT AND TRADEMARK OFFICE

2 BEFORE THE PATENT TRIAL AND APPEAL BOARD

3 COOLIT SYSTEMS, INC. :
4

Petitioner :
5

Vs. : Case No. :
6

ASETEK DANMARK A/S : IPR2020-00522
7

Patent Owner :
8

10 Deposition of MARC HODES, Ph.D., was
11 taken via Zoom on Monday, November 2, 2020,
12 commencing at 12:26 p.m., at 1600 Massachusetts
13 Avenue, Unit 802, Cambridge, Massachusetts, before
14 MICHELE D. LAMBIE, Notary Public.
15

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18
19
20 Reported By:
21

Michele D. Lambie, CSR-RPR

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20

21 ALSO PRESENT: Ken Dyer, Esquire

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(Attached to Transcript.)

11 MARC HODES, Ph.D.

12 Exhibit 1003 Declaration of Marc Hodes, Ph.D. 4

13 Exhibit 1005 Duan Documentation 4

14 Exhibit 1006 Certified Translation of 4

15 Unexamined Patent Gazette

16 Exhibit 2015 Declaration for 354 Patent 53

17 (Exhibits attached to transcript.)
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19
20
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PROCEDING S

(Whereupon, Hodes Deposition Exhibit No. 1003, Declaration of Marc Hodes, Ph.D., marked for identification.)

(Whereupon, Hodes Deposition Exhibit No. 1005, Duan Documentation, marked for identification.)

(Whereupon, Hodes Deposition Exhibit No. 1006, Certified Translation of Unexamined Patent Gazette marked for identification.)

MARC HODES, Ph.D.,
the Deponent, called for examination via Zoom by
the Defendant, being first duly sworn to tell the
truth, the whole truth, and nothing but the truth,
testified as follows:

EXAMINATION

BY MS. BHATTACHARYYA:

Q. Good morning, Dr. Hodes. Will you please state and spell your full name for the record?

A. Sure. It's Marc, M-A-R-C, Hodes, H-O-D,
as in David, E-S.

1 Q. Dr. Hodes, have you been deposed before?

2 A. No.

3 Q. Since -- since you have not been deposed
4 before, I'll just go over some basic rules of how
5 this deposition will proceed today.

6 A. Okay.

7 Q. As CoolIT's Counsel has already told you,
8 I'll ask you a series of questions. If you don't
9 understand any of my questions, please feel free to
10 ask me to clarify, and I'll be happy to do that. I
11 can also restate my question.

12 A. Okay.

13 Q. Also, as the court reporter already
14 mentioned to you, please try and give verbal
15 answers to my questions. Generally, in every day
16 conversation, people nod their head or shake their
17 head. Those type of gestures will be very hard for
18 the court reporter to transcribe, so please wait a
19 second and give a verbal answer to my question.
20 And I'll try to not talk over you, and I expect
21 that you don't do the same because it will be very

1 hard to transcribe.

2 A. Okay.

3 Q. And Mr. Chen will -- might object to some
4 of my questions, but if you understand my question,
5 you should still answer it unless it involves a
6 question of privilege, attorney/client privilege.
7 In that case, we'll see if we can -- maybe Mr. Chen
8 and I will confer. We will figure out if there's
9 an attorney/client privilege issue, but aside from
10 privilege questions, even if there's an objection
11 by Mr. Chen, you should answer my question.

12 If you need to take a break at any time
13 during the deposition, please feel free to ask me.
14 We'll take a break about every hour, hour and a
15 half in between, but if you do need a break any
16 time, just -- just let me know. I will only ask
17 that if there's a question pending, that you answer
18 my question before we take a break.

19 A. Okay.

20 Q. As Mr. Chen may have already told you,
21 you are not supposed to confer with Counsel about

1 the substance of your deposition today during
2 breaks, do you understand that?

3 A. Yes.

4 Q. And do you understand that you are under
5 an oath to answer my questions truthfully and
6 completely?

7 A. Yes, I do.

8 Q. A deposition works the same way as if
9 you're testifying in a court of law under oath, do
10 you understand that?

11 A. Yes, I do.

12 Q. And I'm sure the answer to this is no,
13 but are you under the influence of alcohol or any
14 drugs that would impair your ability to answer my
15 questions truthfully and completely today?

16 A. No, I'm not under the influence of any
17 alcohol or drugs.

18 Q. Okay. So are you ready to begin?

19 A. Yes. Sure.

20 Q. And just to clarify, if I refer to Asetek
21 during this deposition, I mean Asetek Danmark A/S,

1 do you understand that?

2 A. Yes.

3 Q. And if I say CoolIT or CoolIT, I mean
4 CoolIT Systems, Inc., do you understand that?

5 A. Yes.

6 Q. So, Dr. Hodes, can you tell me what you
7 have done to prepare for the deposition today?

8 A. Sure. Do you want me to tell you what I
9 have done in the past few days or in general?

10 Q. You can -- you can answer the question in
11 general everything that you have done leading up to
12 the deposition today.

13 A. Sure. I examined the materials
14 considered and ultimately prepared my declaration.
15 And then for the past couple of weeks, I've
16 reviewed the materials considered and my
17 declaration, and I also looked at the preliminary
18 patent owner's response and the institution
19 decision.

20 Q. Approximately how much time did you spend
21 over the past couple of weeks going over these

1 materials in preparation for the deposition today?

2 A. I'd say a full work week approximately.

3 Q. Would you say about 30 to 40 hours?

4 A. Yes, about 40 hours.

5 Q. Did you meet with anyone to prepare for
6 your deposition today?

7 A. Yes. I met with Counsel.

8 Q. And by Counsel, do you mean Mr. Chen?

9 A. Yes, and also Mr. Dyer.

10 Q. When did you meet with them?

11 A. I met with them over the past two to
12 three weeks once I was notified that I was going to
13 be deposed today.

14 Q. And did you meet with them in person or
15 by video?

16 A. Only by Zoom and on the phone.

17 Q. Okay. Approximately how much time did
18 you spend in talking to Mr. Chen and Mr. Dyer?

19 A. I would say Mr. Chen, approximately 15
20 hours, and Mr. Dyer, approximately, at most, two
21 hours.

1 Q. And the approximately 15 hours that you
2 met with Mr. Chen, was that for this particular
3 deposition for the Asetek's 355 patent, or are the
4 hours estimate that you're giving me, is that for
5 this particular deposition or for all of the
6 depositions that are coming up in this week?

7 A. Yeah, that would be --

8 MR. CHEN: I'm going to caution you not
9 to reveal attorney/client communication. You can
10 answer.

11 THE WITNESS: It would be for all three
12 depositions this week.

13 BY MS. BHATTACHARYYA:

14 Q. Okay. So, earlier when you said you
15 spent about a week's worth of time reviewing all of
16 the materials, did you mean the materials for all
17 three depositions this week for the 355 patent, the
18 354 patent, and the 681 patent?

19 A. Yes, I did.

20 Q. Okay. Can you tell me approximately how
21 much time you spent for the deposition today, for

1 today's IPR involving Asetek's 355 patent?

2 A. Sure. For the 355 patent, I would
3 estimate that it was half the total time that I
4 previously stated.

5 Q. Approximately how much time would that
6 be?

7 A. Well, let's say for the 355 patent in and
8 of itself, I would have spent about 20 hours.

9 Q. When is the last time you met with
10 Mr. Chen and Mr. Dyer?

11 A. The last time I met with Mr. Chen was
12 this morning, and the last time I met with Mr. Dyer
13 was last Friday.

14 Q. And the last time you met with Mr. Chen,
15 was that in preparation for the deposition today?

16 A. Yes, it was.

17 Q. And the last time you met with Mr. Dyer
18 on Friday, was that in preparation for the
19 deposition today?

20 A. Yes.

21 Q. Aside from this IPR against Asetek's 355

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1 patent, the 354 patent, and the 681 patent, have
2 you been retained as an expert in any other
3 litigation?

4 A. Yes, I have.

5 Q. Which case is that?

6 A. There's another case between Asetek and
7 CoolIT that I have been retained as an expert on.
8 I don't have the case number handy.

9 Q. Is that a District Court litigation?

10 A. It is a -- a case in which Asetek was the
11 petitioner rather than Asetek as here, but I
12 don't -- I'm not especially familiar with all of
13 the various legal terms.

14 Q. Have you been retained as an expert in a
15 litigation -- and maybe I should just clarify the
16 terminology. So, what I'm asking you is that have
17 you been retained as an expert in the court case
18 between Asetek and CoolIT?

19 A. I guess --

20 MR. CHEN: Objection. Vague.

21 THE WITNESS: Yeah, the -- the other case

1 I also did a declaration. It was through a
2 different firm, but it's between CoolIT and Asetek
3 again.

4 BY MS. BHATTACHARYYA:

5 Q. In what context did you prepare a
6 declaration for the other case?

7 A. I prepared a declaration for the other
8 case in the context of a petition filed by Asetek
9 against CoolIT and gave my expert opinion in a
10 declaration. It was a few months ago, so I don't
11 remember all of the details. It hasn't been
12 something that I have been working on the past
13 couple of months.

14 Q. Okay. Do you recall which law firm that
15 you worked with in preparing that declaration for
16 the other case?

17 A. Yes. It was a law firm called Ganz
18 Pollard.

19 Q. Okay. And how many declarations did you
20 prepare for the Ganz Pollard law firm?

21 A. One declaration for them.

1 Q. Okay. Have you worked with any attorneys
2 at Cooley LLP?

3 A. I briefly conferred with one attorney at
4 Cooley.

5 Q. Which attorney was that?

6 A. Reuben Chen.

7 Q. And did -- your discussion with Reuben
8 Chen was in relation to which matter?

9 A. It was in relation to this declaration.

10 Q. What do you mean by this declaration?

11 A. I'm sorry, this deposition.

12 Q. Okay. The deposition that we are in
13 right now for Asetek's 355 patent?

14 A. Yes.

15 Q. And when did you talk to Mr. Reuben Chen?

16 A. I talked to Mr. Reuben Chen yesterday.

17 Q. By phone or by video?

18 A. By video.

19 Q. And for how long?

20 A. About 15 minutes.

21 Q. And was the discussion with Mr. Reuben

1 Chen in relation to your preparation for the
2 deposition today?

3 A. Yes.

4 Q. I want to circle back to my earlier
5 question about the District Court litigation
6 between Asetek and CoolIT. I understand you have
7 been retained for the three IPR petitions that have
8 been filed by CoolIT against Asetek's patents, and
9 it sounds like you have been retained as an expert
10 for the two petitions that Asetek filed against
11 CoolIT's patents, am I correct?

12 A. Yes. I remember -- I believe it was one
13 petition by Asetek against CoolIT.

14 Q. Okay.

15 A. It may have been two, but my vague
16 recollection is one.

17 Q. Okay. And I know all of these
18 proceedings can get complicated, but these
19 proceedings are -- you know, involve the Patent
20 Office, and we commonly refer to them as the PTAB,
21 which is the Patent Trial and Appeal Board, and

1 then there's the District Court litigation
2 involving all of these patents which are in
3 the -- ongoing in the Northern District of
4 California.

5 So, my question to you is have you been
6 retained as an expert in that District Court
7 litigation?

8 A. My understanding is -- is yes.

9 Q. Have you done any work on behalf of
10 CoolIT for that District Court litigation?

11 A. Yes. Through Ganz Pollard, I prepared a
12 declaration.

13 Q. And is that the same declaration you
14 mentioned earlier which was for Asetek's petition
15 against -- at least one of Asetek's petitions
16 against CoolIT, right?

17 A. Yes.

18 Q. Okay.

19 A. Correct.

20 Q. Let me ask you a slightly different
21 question.

1 A. Sure.

2 Q. Aside from the three declarations that
3 you submitted for the three petitions that CoolIT
4 filed against Asetek's patent and the at least one
5 declaration that you prepared for the Ganz Pollard
6 law firm for a petition filed by Asetek against
7 CoolIT's patent, have you done any other work for
8 CoolIT?

9 A. No, I have not.

10 Q. Have you done any other work for
11 Mr. Chen's firm, Greenberg Traurig?

12 A. No, I have not.

13 Q. Have you done any other work for
14 Mr. Reuben Chen at the Cooley law firm?

15 A. No, I have not done any other work for
16 Mr. Reuben Chen.

17 Q. Have you been retained as an expert in
18 any other District Court or patent office
19 proceeding by any party other than CoolIT?

20 A. Yes.

21 Q. What case is that?

1 A. I have been retained by a firm called
2 Middleton as an expert to prepare a declaration,
3 which has not been done yet, in a matter entirely
4 unrelated to any thermal electronics cooling or
5 thermal management or a subject matter pertinent to
6 this case.

7 Q. What subject matter does that declaration
8 relate to?

9 A. It relates to heat transfer between the
10 human body and an inanimate object so far as
11 comfort is concerned.

12 Q. You said that that declaration has not
13 been prepared yet. Are you in the process of
14 preparing that declaration?

15 A. Yes, I am in the process of preparing
16 that declaration.

17 Q. And that matter involves an IPR; is that
18 correct?

19 A. It --

20 MR. CHEN: Objection. Vague.

21 THE WITNESS: It's at the very early

1 stages. So, so far, all I've done was to examine a
2 patent in the prior art and start to discuss terms.

3 BY MS. BHATTACHARYYA:

4 Q. Okay. My question was just, it's -- the
5 declaration that you have started working on, is
6 that in relation to a -- a patent office proceeding
7 like the one we are dealing with here, or is this a
8 court proceeding?

9 A. I don't know all of the nontechnical
10 details, because so far, I was given a patent from
11 the company not representing my client to read and
12 a series of prior art patents to read and comment
13 upon, but I haven't gotten into the -- to the
14 details of exactly what's going on from a legal
15 perspective yet. I have only focused on the
16 technical matters at hand to date.

17 Q. Okay. Other than this one other matter
18 for the law firm Middleton, have you been hired as
19 a technical expert in any other court proceeding or
20 patent office proceeding?

21 A. No, I have not.

1 Q. Dr. Hodes, can you go to Exhibit 1003,
2 which is your declaration that you submitted for
3 this IPR proceeding, IPR2020-00522?

4 A. Sure. And I have it in front of me now.

5 Q. Can you confirm that this is your
6 signature on the first page of the declaration
7 marked as Exhibit 1003?

8 A. Yes, I can.

9 Q. Is your CV, which is attached as Appendix
10 A to your declaration, current or reasonably
11 current?

12 A. I will confirm that. Yes. It's dated
13 October 30th, 2019, so it's -- it's essentially
14 current.

15 Q. Is there anything you would like to add
16 to your CV?

17 A. No, there's nothing I would like to add
18 to my CV.

19 Q. Do you stand by all of the opinions in
20 your declaration marked as Exhibit 1003?

21 A. Yes, I do.

1 Q. Are there -- are you aware of any
2 mistakes in your declaration that you would like to
3 correct today?

4 A. I'm aware of misunderstandings in my
5 declaration insofar as my review of the preliminary
6 patent owner response document that I also
7 reviewed.

8 Q. Are you aware of any mistakes in the
9 words in your declaration that you would like to
10 correct?

11 A. No, I'm not.

12 Q. Have you talked to anyone at CoolIT,
13 besides Mr. Dyer, to prepare your declaration?

14 A. No. The only person I have ever spoken
15 to at -- at CoolIT would be Mr. Dyer.

16 Q. Who prepared the first draft of the
17 declaration marked as Exhibit 1003?

18 A. So, the declaration was prepared
19 last -- well, January/February of this year. The
20 way it was prepared was a rather iterative process
21 where I was provided with the prior art to be

1 considered and, of course, the 355 patent. I
2 proceeded to discuss those materials with Counsel
3 at CoolIT, and then there was a lot of iteration
4 and discussion, and eventually I came up with a
5 document where the opinions that are expressed in,
6 i.e., the declaration are my opinions and my
7 opinions alone.

8 Q. Did you type in the first draft of this
9 declaration?

10 A. I didn't type the declaration word for
11 word. I received materials, including the prior
12 art, in the 355 patent and discussed them and then
13 received materials about the claims, discussed them
14 and edited them, discussed them more and edited
15 them more and eventually crafted the declaration as
16 such.

17 Q. My question to you is who sent you the
18 first draft of the declaration?

19 A. So --

20 MR. CHEN: Objection. Vague. Compound.
21 Assumes facts not in testimony.

1 THE WITNESS: So, assuming -- sorry.
2 Insofar as the first draft of the
3 declaration -- before the first draft, I received a
4 claim chart after our discussions, iterated upon
5 the claim chart. I edited it, rewrote parts of it,
6 and then my opinions were assembled by Counsel into
7 the format that the declaration is currently in,
8 and then I continued to edit it many times until I
9 was content that all of the opinions expressed in
10 the declaration were exclusively my opinions based
11 on the material considered in the declaration as
12 specified in it at the beginning.

13 BY MS. BHATTACHARYYA:

14 Q. Who sent you the claim chart that you
15 mentioned?

16 A. It was ten months ago, and there were
17 several attorneys that were involved at Greenberg
18 Traurig. I believe for the 355, it was an attorney
19 who I had recalled his name being Xavier.

20 Q. And when you said that you went back and
21 forth with Counsel at CoolIT, do you mean attorneys

1 at Greenberg Traurig?

2 A. Sorry. Yes, I do mean attorneys at -- at
3 Greenberg Traurig. I didn't meet Ken until the
4 last few weeks.

5 Q. And who assembled your opinion into a
6 draft of the declaration?

7 A. I can't recall declaration by declaration
8 because I was preparing three declarations
9 simultaneously. I just remember the names of the
10 attorneys that I worked with, in addition to
11 Mr. Chen, being Xavier and another attorney with
12 the first name Vivek, and there were a couple of
13 other attorneys that played a lesser role, but
14 I -- you know, I don't even remember the names.

15 Q. Was your main attorney contact at
16 Greenberg Traurig Mr. Kyle Chen?

17 A. Yes. My -- my primary contact was -- was
18 Mr. Kyle Chen at Greenberg Traurig.

19 Q. And did you consult with Mr. Kyle Chen in
20 the process of preparing the three declarations
21 against Asetek's patents?

1 A. Yes. I discussed matters that appeared
2 in the declaration with Mr. Chen during my
3 preparation of the declaration.

4 Q. And how frequent were your discussions
5 with Mr. Kyle Chen during the preparation of your
6 three declarations against Asetek's patents?

7 A. I would say they were every day or two.

8 Q. And how long was this process of
9 preparing the three declarations against Asetek's
10 355, 354, and 681 patents?

11 A. That process was a couple of weeks, give
12 or take.

13 Q. And during this couple of weeks of
14 preparing the three declarations against Asetek's
15 patents, you talked to Mr. Kyle Chen on a regular
16 basis; is that right?

17 A. Yes. That's correct.

18 Q. Did you meet with any of the attorneys at
19 Greenberg Traurig in person in preparing your three
20 declarations against Asetek's 355, 354, and 681
21 patents?

1 A. No. We never -- we never had any
2 in-person meetings.

3 Q. The reason I asked is because this was in
4 January and February when we still used to meet
5 people face-to-face.

6 A. Yeah. I mean, I remember shortly
7 thereafter everything changed.

8 Q. Yes. Yes.

9 A. It's like a different era.

10 Q. I understand it may be difficult because
11 you said you were working on three separate
12 declarations at the same time, but can you
13 approximate the amount of time that you spent in
14 preparing your declaration against Asetek's 355
15 patent?

16 A. Sure. Let's see. I would say it was all
17 told a full week's of work, so roughly a dozen
18 hours.

19 Q. And does a dozen hours involve reviewing
20 the claim chart, the materials, editing the draft
21 of the declaration, etcetera?

1 A. Yes.

2 Q. Let's turn to paragraph 8 of your
3 declaration marked as Exhibit 1003.

4 A. Sure. Paragraph 8 you said?

5 Q. Yes.

6 A. Okay. I have got it open.

7 Q. You have that, Dr. Hodes?

8 A. Yes, I do.

9 Q. Okay. In paragraph 8 of your declaration
10 you state, My primary consulting client is CoolIT
11 Systems, Inc., acting as a -- as an expert on
12 thermal management in general, including liquid
13 cooling and advising on integration of pumps onto
14 heat exchangers to cool CPUs. Do you see that?

15 A. Yes.

16 Q. By consulting client, what do you mean?

17 A. I mean, the end client that was actually
18 filing the petitions.

19 Q. Have you done any -- any consulting work
20 for CoolIT besides this declaration for the IPR
21 proceedings?

1 A. No. I've never -- I've never done
2 anything else for -- for CoolIT.

3 Q. And just so I'm clear, you have not done
4 any consulting work for CoolIT with respect to
5 development of CoolIT's products; is that right?

6 A. Yes. You're correct.

7 Q. And what do you mean by advising on
8 integration of pumps onto heat exchangers to cool
9 CPUs?

10 A. I'm just reading the paragraph again
11 here. Well, I mean based -- essentially, I have a
12 lot of experience with liquid cooling, which
13 involves pumps that I was evaluating the materials
14 considered from an expert's perspective is the way
15 I viewed it.

16 Q. By materials considered, do you mean the
17 materials that are listed in paragraph 11 of your
18 declaration?

19 A. Let me just check. Yes. Those are the
20 materials that I evaluated.

21 Q. Dr. Hodes, just give me two seconds. I'm

1 just going to grab my cup of water.

2 A. Yes, take your time.

3 Q. Okay. I'm back.

4 A. Great.

5 Q. What is your understanding of a heat
6 exchanger?

7 A. My understanding of a heat exchanger is a
8 piece of hardware that facilitates the exchange of
9 thermal energy between two objects, say, a liquid
10 and a gas, so that they come closer to an
11 equilibrium state.

12 Q. So, you said a cold plate is a heat
13 exchanger?

14 A. A cold plate in the sense that it takes
15 heat out of a solid object that facilitates the
16 transfer of that heat into a liquid is one body of
17 a heat exchanger.

18 Q. And what did you mean by integration of
19 pumps onto heat exchangers in paragraph 8 of your
20 declaration?

21 A. Sure. What I meant by integration of

1 pumps onto heat exchangers was in respect -- with
2 respect to making the overall system used for
3 cooling more compact, basically bringing the pump
4 closer to the heat exchanger rather than having it
5 displaced from the heat exchanger by significant
6 lengths of conduit.

7 Q. So, if a pump is in close proximity to a
8 heat exchanger, would you consider that an
9 integration of the heat exchanger and the pump?

10 MR. CHEN: Objection. Lacks foundation.
11 Incomplete hypothetical.

12 THE WITNESS: So, if a pump is in close
13 proximity of a heat exchanger, I would say you
14 could consider the two to be integrated.

15 BY MS. BHATTACHARYYA:

16 Q. So, if a pump is located on top of a heat
17 exchanger and the pump and the heat exchanger
18 are -- are connected by short tubing, you would
19 consider that pump and that heat exchanger to be
20 integrated; is that correct?

21 MR. CHEN: Same objections. Sorry. Same

1 objections.

2 THE WITNESS: So, if a pump and a heat
3 exchanger are such that the housing for the pump is
4 in contact with the heat exchanger, I would
5 consider them to be integrating. There are
6 different degrees of integrating.

7 BY MS. BHATTACHARYYA:

8 Q. If the pump and the heat exchanger are
9 separated by a small space, but they're still close
10 to each other, would you consider that pump and
11 that heat exchanger to be integrated?

12 MR. CHEN: Objection. Outside the scope,
13 and the same objection before.

14 THE WITNESS: Again, a pump and a heat
15 exchanger are contacting one another via only, say,
16 a soft material between them to dampen the
17 vibrations from the pump, I would consider them to
18 be integrated. But to integrate them further as in
19 some of the material that's considered in the
20 declaration, they don't even need that much. So,
21 as I said before, that would be an even higher

1 degree of integration.

2 BY MS. BHATTACHARYYA:

3 Q. Just so I understand and since you're
4 talking about degrees of integration, if a pump and
5 a heat exchanger are separated by a material that
6 dampens pump vibrations --

7 A. Sure.

8 Q. -- and the pump and the heat exchanger
9 are connected by a tubing, you would consider that
10 an integration of the pump and the heat exchanger?

11 MR. CHEN: Lacks foundation. Incomplete
12 hypothetical. Asked and answered. Outside the
13 scope.

14 THE WITNESS: Yes, relative to the -- the
15 situation where the pump is physically separated
16 from the heat exchanger via substantial lengths of
17 conduit. So, if I go to the declaration, if I may?

18 BY MS. BHATTACHARYYA:

19 Q. Sure.

20 A. Can you see my screen, Arpita?

21 Q. Your -- what do you mean by your screen?

1 I can see the declaration on my end.

2 A. Can you see me scrolling through it?

3 Q. No. I can only --

4 A. Sorry.

5 Q. So you can tell me what paragraph I need
6 to go to, --

7 A. Sure.

8 Q. -- and I will go there.

9 A. Okay. If you go to -- I'm just looking
10 through the declaration. Give me a second here.

11 (Whereupon, there was a pause for
12 document examination.)

13 THE WITNESS: Sorry. I'm trying to find
14 the picture I'm looking for.

15 (Whereupon, there was a pause for
16 document examination.)

17 THE WITNESS: Okay. Yeah, if you go to
18 paragraph 185.

19 BY MS. BHATTACHARYYA:

20 Q. Yes.

21 A. And then if you go to this figure on page

1 102, Figure 3 from Shin, --

2 Q. Um-hum.

3 A. -- you see that there's a -- a pump on
4 top of a cold plate heat exchanger. Towards the
5 upper right of that figure, there's that big
6 component with the -- the interconnect standing out
7 of it, some high-powered dissipation CPU-type
8 component, and the pump is located directly on top
9 of the cold plate heat exchanger, so I would
10 consider them to be integrated.

11 Q. Maybe it will help if we go to the Shin
12 reference itself. I have already made that
13 available. So, if you would go to your exhibit
14 folder, you will find the Shin reference --

15 A. Oh, okay.

16 Q. -- marked as Exhibit 1006.

17 A. That is --

18 Q. So, if you open that up, that will help
19 our discussion.

20 A. Sure. Okay. Okay. I have the Shin
21 reference open, and then if you go to, for example,

1 Figure 3. Are you there, Arpita?

2 Q. Yes, I'm there.

3 A. Okay. Yeah, there's -- there's a
4 vibration-absorbing membrane, 19, between
5 the -- the pump and the heat exchanger, but since
6 they're essentially contacting one another through
7 that membrane, I would consider them to be
8 integrated.

9 Q. Dr. Hodes, do you understand that the
10 parties stipulated to the construction of reservoir
11 as a single receptacle defining a fluid flow path,
12 right?

13 A. Yes, I do understand that.

14 Q. And did you apply that construction of
15 reservoir in your declaration?

16 A. I did.

17 Q. Let's look at Figure 1 of Shin, which is
18 Exhibit 1006.

19 A. Okay. Let me go to Figure 1. Okay. I
20 have it.

21 Q. Can you tell me what forms the single

1 receptacle defining the fluid flow path? I.e.,
2 what forms the reservoir in this cooling device
3 shown in Figure 1 of Shin?

4 A. Yeah. I wouldn't consider Figure 1 of
5 Shin to constitute a reservoir the way you have
6 defined it as a single receptacle defining a fluid
7 flow path. I would say that Shin constitutes a
8 pump heat exchanger integrated together, but
9 getting back to what I stated previously, there are
10 more aggressive means by which you can integrate
11 the pump and the heat exchanger. And for that, I
12 would refer to, for example, Duan, the prior art by
13 Duan in my declaration if you wish me to show you
14 that.

15 Q. So, it's your opinion that Shin does not
16 disclose the reservoir?

17 A. Yes. I -- I do not consider Shin to have
18 disclosed a reservoir.

19 Q. Okay. Does Duan disclose a reservoir?

20 A. Yes, Duan discloses a reservoir.

21 Q. And the reservoir is a single receptacle,

1 right?

2 A. Yeah. It's -- as you said before -- I'd
3 have to go back to my declaration, but it was a
4 single receptacle, I believe, to define a fluid
5 flow path. So, in my opinion, Duan discloses a
6 reservoir, but not Shin.

7 Q. And I have also shared the Duan -- the
8 Duan reference. It's marked as Exhibit 1005. If
9 you could open that up, please.

10 A. Sure. Okay. I have Duan opening. I'm
11 ready, Arpita, when you are.

12 Q. Okay. What components of Duan's cooling
13 device forms a single receptacle defining a fluid
14 flow path, i.e., a reservoir?

15 A. Would it be okay if I showed you the
16 figures in my declaration, or would -- would you
17 prefer I stick with Duan?

18 Q. We can go to your declaration.

19 A. Okay. I'll go to my declaration. Okay.
20 I'm just looking through my declaration.

21 (Whereupon, there was a pause for

1 document examination.)

2 THE WITNESS: Okay. If you can go to
3 Figure 2 on page 26, please.

4 BY MS. BHATTACHARYYA:

5 Q. I'm there.

6 A. I just want to go back to -- yeah.

7 Regarding Figure 2 on page 26, reservoir would be
8 what is between the lower cover 225 and
9 additionally what is in the accommodation chamber,
10 and additionally it would include the fluid that is
11 beneath cap 3.

12 So, in the context of Duan, I would
13 consider the reservoir as the portion of this
14 figure that contains the fluid between the -- the
15 liquid inlet shown at the top left of the figure
16 and the -- the liquid outlet shown by 31. So, I
17 would consider all of that fluid to be within the
18 reservoir.

19 Q. The term reservoir recited in the claims
20 of the 355 patent includes a pump chamber and a
21 thermal exchange chamber, correct?

1 A. That's my recollection. I'd have to go
2 back to the claim itself to -- to confirm it,
3 but -- could you tell me which claim?

4 Q. Sure. Let's go to page 31 of your
5 declaration.

6 A. Okay. Yes.

7 Q. Let me know when you're there.

8 A. I'm there.

9 Q. Do you see the heading (iii)?

10 A. Yeah, I do.

11 Q. And [1b] where it says -- and this is
12 part of Claim 1 of the 355 patent. It recites, The
13 reservoir including: A pump chamber housing an
14 impeller and defined at least in part by an
15 impeller cover and a double-sided chassis?

16 A. Yes.

17 Q. The impeller being positioned on one side
18 of the chassis and a stator of the pump is
19 positioned on an opposite side of the chassis; do
20 you see that?

21 A. Yes.

1 Q. What forms the pump chamber of the
2 reservoir in Duan?

3 A. Okay. The pump chamber of the reservoir
4 in Duan -- I've got to go in my declaration. Yeah.
5 So, the pump chamber in Duan -- if I go back to
6 Figure 2 on page 26, the pump chamber would be the
7 fluid side of the accommodation chamber 21 and also
8 the part of the device containing the liquid
9 between the impeller cover and the impeller.

10 Q. Well, what do you mean by the fluid side
11 of the accommodation chamber 21?

12 A. I mean the side of accommodation chamber
13 21 that doesn't have the -- the coil stage that has
14 the -- the liquid in it.

15 Q. And you said that the pump chamber also
16 includes the part of the device containing the
17 liquid between the impeller cover and the impeller;
18 is that right?

19 MR. CHEN: Objection. Mischaracterizing
20 the testimony.

21 THE WITNESS: I'm scrolling down through

1 my declaration.

2 (Whereupon, there was a pause for
3 document examination.)

4 THE WITNESS: Could you repeat the
5 question again, Arpita? I'm sorry.

6 BY MS. BHATTACHARYYA:

7 Q. I'm just trying to understand the
8 boundaries of what is the pump chamber of Duan in
9 your opinion.

10 A. Okay.

11 Q. If you -- if you want to scroll through
12 your declaration and then give me an answer, that
13 is fine.

14 A. Yeah, just give me a second. I'll scroll
15 through it. Thanks.

16 (Whereupon, there was a pause for
17 document examination.)

18 THE WITNESS: I would consider the pump
19 chamber, again, to be the portion of Duan -- of
20 Duan's invention that includes -- if I go to -- let
21 me go to another page.

1 I'll go to page 35. I would consider the
2 pump chamber to be the part of the structure that
3 holds the liquid, which is located between the
4 lower cover 225 and the inner wall of the
5 accommodation chamber 21, which you can see better
6 I guess on page 29. So, that inner wall of the
7 accommodation chamber colored in lime green on page
8 29, that would also be part of the structure that
9 shrouds the liquid which is located within the pump
10 chamber.

11 BY MS. BHATTACHARYYA:

12 Q. You said the inner wall of the
13 accommodation chamber. What do you mean by that?

14 A. I mean in reference to Figure 3 on page
15 29, the -- the wall of the accommodation chamber
16 that is on the liquid side and is in direct
17 physical contact with the liquid.

18 Q. There is only one circumferential wall in
19 the accommodation chamber 21 of Duan, right?

20 A. Yeah, and I'm -- well, I guess there's
21 a -- there's an inside of that structure that

1 touches the liquid, and there's an outside of that
2 structure that touches the surrounding air, you
3 know, outside the pump chamber.

4 So, I just wanted to be clear that I'm
5 talking about the -- the inner wall is what shrouds
6 the liquid and forms part of the overall structure
7 that constitutes the pump chamber.

8 Q. I'm just confused by the term inner wall.
9 There is one wall that forms the accommodation
10 chamber 21 on Duan which has an inner surface that
11 contacts the liquid and an outer surface that
12 contacts the air; --

13 A. Yes.

14 Q. -- is that right?

15 A. That's -- that's correct. Sure.

16 Q. And what forms the thermal exchange
17 chamber of the alleged reservoir in Duan?

18 A. Sure. Let me scroll through my
19 declaration and revisit precisely what's stated in
20 my declaration again.

21 So, yeah. I mean, what forms the thermal

Page 44

1 exchange chamber as -- I'll refer to a figure in a
2 minute, but just to read how I stated it when I
3 wrote the declaration was: A thermal exchange
4 chamber disposed between the pump chamber and the
5 heat-generated component.

6 So, in Duan, the thermal exchange
7 chamber, if I go to -- let me just find the figure
8 where I defined it.

9 Let's just go to Figure 2 again on page
10 35 just because it's as good as any other figure.
11 The thermal exchange chamber is the chamber between
12 the cap 3 colored in light blue and the cooling
13 plate 1 colored in dark blue. That's -- that's
14 what I considered the thermal exchange chamber.

15 Q. The accommodation chamber of Duan and the
16 space between cap 3 and cooling plate 1, which
17 forms the thermal exchange chamber, are spatially
18 separated and connected by a tubing, correct?

19 A. Could you repeat that question?

20 Q. The accommodation chamber 21 of Duan,
21 which forms the pump chamber, and the region

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1 between cap 3 and cooling plate 1 of Duan, which,
2 in your opinion, forms the thermal exchange
3 chamber, are spatially separated and connected with
4 a tubing, correct?

5 MR. CHEN: Objection. Objection. The
6 document speaks for itself.

7 THE WITNESS: So, if I go to Figure 8 on
8 page -- actually, let me -- let me see if there's a
9 better figure.

10 Let me use a couple of figures in
11 combination. So, if I go to Figure 8 on page 63 to
12 discuss the connection between the accommodation
13 chamber and the thermal exchange chamber, I would
14 refer you to what's labeled first liquid outlet 24
15 on the accommodation chamber.

16 So, that surface, if I go to
17 page -- let's see a good figure here. Thirty-five,
18 that rectangle that I just showed on page 63, it's
19 co-extensive with the rectangle on what Duan refers
20 to as the lower cover.

21 Now, between that outlet on the lower

1 cover and currently on the accommodation chamber,
2 since they're co-extensive, if I go to -- I'm
3 trying to look for a good figure. Yeah, if I go to
4 Figure 8 on page 48 as an example, I -- I wouldn't
5 cons- -- I wouldn't characterize it as tubing
6 between the accommodation chamber/lower cover,
7 because in Figure 8 on page 48, you can see that
8 the -- it's hard to see, but the -- I'm just making
9 my screen bigger. The hatch pattern doesn't
10 change.

11 So, there's a solid wall that comes up
12 from the cap and eventually becomes part of the
13 accommodation chamber. They're monolithic. So, in
14 my opinion, there's no tubing I guess is what I'm
15 trying to emphasize between the outlet to the lower
16 cover/accommodation chamber, and where the fluid
17 enters cap 3 through what's labeled 24 in Figure 8,
18 where it enters what we're also calling the thermal
19 exchange chamber.

20 BY MS. BHATTACHARYYA:

21 Q. So, is that the -- strike that.

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1 So, staying with this annotated Figure 8
2 on page 48 of your declaration --

3 A. Okay.

4 Q. -- the component shown in the red box
5 which is annotated as the pump chamber --

6 A. Yes.

7 Q. -- and the component shown in the box
8 annotated in blue and referred to as the thermal
9 exchange chamber, --

10 A. Yes.

11 Q. -- those two regions, the red box and the
12 blue box, in combination with this opening 24 that
13 connects the pump chamber and the thermal exchange
14 chamber forms the reservoir in your opinion?

15 A. Let me just go back to my declaration.

16 Just give me a second. I have got to shrink my
17 font because I expanded it to see that hatching.

18 All right. I'm scrolling through again.
19 Just give me a second.

20 (Whereupon, there was a pause for
21 document examination.)

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1 THE WITNESS: Yeah. If you go to
2 page -- it's page 30. I drew a heavy red line
3 around what I considered to be the reservoir, and
4 it includes that passage that we were just
5 discussing.

6 BY MS. BHATTACHARYYA:

7 Q. Let's go back to the annotated Figure 8
8 of Duan shown on page 48 of your declaration.

9 A. Okay, sure. Okay. Okay. I'm back
10 there.

11 Q. The outlet 24 of Duan is positioned at
12 one end of Duan's cap 3, correct?

13 A. Yes. Correct.

14 Q. Cooling liquid from Duan's accommodation
15 chamber 21 enters the space defined by cap 3
16 through this outlet 24, correct?

17 A. Yeah. I would say that that shape that
18 has three flat sides and one curved side, the
19 curved side representing the co-extensive opening
20 between the lower cover and the accommodation
21 chamber, yeah, that -- I agree with that.

1 That's -- that's the space we're talking about.

2 Q. Okay. Cooling liquid flows from one end
3 of cap 3 to the other end and exits through outlet
4 31, correct?

5 A. Yeah. The cooling liquid, it flows
6 between the ends of cap 3 between the -- the cold
7 liquid enters at passage 24, and the hot liquid
8 leaves through 31.

9 Q. Can we look at Shin, which is Exhibit
10 1006?

11 A. Sure. I'll open that again. Shin.
12 Okay. I have -- I have Shin open.

13 Q. Can you please go to Figure 1 of Shin?

14 A. Sure. Oh, okay. It's on the first page.
15 Okay. I'm there.

16 Q. Okay. In Shin's cooling device shown in
17 Figure 1, the cooling liquid flows from pump 5 to
18 the heat sink 4, to a hose 6, correct?

19 A. Correct.

20 Q. And the cooling liquid enters heat sink 4
21 through hose 6 at one corner at the perimeter of

1 Shin -- Shin's heat sink 4, correct?

2 A. Yes. The cooling liquid enters heat sink
3 4 through and at a corner of the perimeter of the
4 cold plate 4. Indeed, correct.

5 Q. And in Shin's device, the cooling liquid
6 in heat sink 4 flows from the corner of the
7 perimeter where it enters to the opposite corner
8 also at the perimeter and exits through hose 16,
9 correct?

10 MR. CHEN: Objection. Document speaks
11 for itself.

12 THE WITNESS: I would say the cooling
13 liquid enters through 10, the cold plate, and exits
14 through 16, but I'm not sure exactly what the flow
15 path within the cold plate 4 could be, because, you
16 know, you could have longitudinal or transverse
17 fins in there or you could have plane fins in
18 there.

19 One -- a POSITO would design the flow
20 path based upon, for example, the uniformity, or
21 lack thereof of the heat flux coming into the base

1 of the cold plate.

2 It's very common if the heat flux is high
3 in one region and relatively low in another region
4 to divert more of the flow to the region where the
5 heat flux is, say, 150 watts per centimeter squared
6 rather than, you know, a hundred watts per
7 centimeter squared. So, I -- I really -- I think
8 the flow path in there is -- is up to the designer
9 for the particular application.

10 MS. BHATTACHARYYA: I just noticed that
11 we have been going for close to an hour and a half.
12 Would you like to take a break, Dr. Hodes?

13 THE WITNESS: I'd like to keep going, but
14 I'm more than happy to take a break if you would
15 like to. Whatever -- whatever suits everyone is
16 fine with me.

17 MS. BHATTACHARYYA: Let's take a
18 ten-minute break.

19 THE WITNESS: Okay. Sure.

20 MS. BHATTACHARYYA: Would that be good?

21 (Recess taken -- 1:59 p.m.)

1 (After recess -- 2:18 p.m.)

2 BY MS. BHATTACHARYYA:

3 Q. Welcome back, Dr. Hodes.

4 A. Thanks, Arpita.

5 MR. CHEN: Dr. Hodes, can you hear me?

6 | THE WITNESS: Yes.

7 MR. CHEN: Madame Court Reporter, can you
8 hear me?

9 THE COURT REPORTER: Yes. Yes.

10 MR. CHEN: Thank you.

11 BY MS. BHATTACHARYYA:

12 Q. Dr. Hodes, during the break, did you talk
13 to CoolIT's Counsel about the substance of your
14 deposition so far?

15 A. No, I did not.

16 Q. Before we took the break, you testified
17 that the Shin reference does not disclose a
18 reservoir, do you recall that?

19 A. Yes. In -- in the manner in which we
20 construed reservoir in my declaration, I do recall
21 that.

1 Q. The claim to reservoir has been construed
2 as a single receptacle defining a fluid flow path
3 in all of the IPRs against Asetek's patents,
4 correct?

5 A. Correct. That's my -- my
6 recollection -- my recollection.

7 Q. So, a reservoir has been construed as a
8 single receptacle defining a fluid flow path for
9 Asetek's 354 patent as well, correct?

10 A. I believe so. Without going back to my
11 declaration, I can't confirm it, but that's my
12 recollection.

13 (Whereupon, Hodes Deposition Exhibit
14 2015, Declaration for 354 Patent, marked for
15 identification.)

16 BY MS. BHATTACHARYYA:

17 Q. So, in the marked exhibits folder, I just
18 marked as Exhibit 2015 your declaration that you
19 submitted against Asetek's 354 patent, which is
20 Case Number IPR2020-00523.

21 A. Okay. I see it.

1 Q. Do you recognize Exhibit 2015 as your
2 declaration that you submitted in the petition
3 against Asetek's 354 patent?

4 A. Yes, I do.

5 Q. And the Shin reference that we have been
6 discussing is the same Shin reference for both
7 IPRs --

8 A. Yes.

9 Q. -- involving the 355 patent and the 354
10 patent, correct?

11 A. Correct.

12 Q. Let's go to paragraph 58 of your
13 declaration which is Exhibit 2015.

14 A. Okay. Paragraph 58. Okay. I'm -- I'm
15 there.

16 Q. Okay. In paragraph 58 of Exhibit 2015,
17 you said, Based on these disclosures, in my
18 opinion, a POSITA, which is P-O-S-I-T-A, would
19 understand that Shin discloses or suggests a
20 reservoir (the structural combination of heat sink
21 4, flexible hose 6, coolant discharge section

coupler 7, water supply coupler 9, and impeller case 11) configured to circulate a cooling liquid there-through. Do you see that?

4 A. Yes, I do.

5 Q. So, in the context of the 354 patent, it
6 is then your opinion that Shin does disclose a
7 reservoir formed by the combination of the heat
8 sink, the hoses, the couplers, and impeller case
9 11; is that right?

10 A. Yes. That's definitely what I wrote
11 there in my declaration.

12 Q. But in the context of the 355 patent,
13 Shin does not disclose the reservoir, is that your
14 opinion?

15 A. In the context of the 355 patent, I have
16 to go back to my declaration, but I don't
17 remember -- can I open my 355 declaration?

18 O. Sure.

19 A. That was Exhibit 1003, right? Okay. I'm
20 just going to go to -- I'm scrolling through 355.

21 (Whereupon, there was a pause for

1 document examination.)

2 THE WITNESS: Yes. So, in the context of
3 355, which is the patent that I reviewed -- the
4 declaration that I reviewed for today, I did not
5 discuss a reservoir in the context of Shin. I
6 discussed the fact that Shin used a fan to cool a
7 radiator. That was why I introduced Shin into this
8 declaration.

9 BY MS. BHATTACHARYYA:

10 Q. The reservoir means the same thing in the
11 context of the 354 patent and the 355 patent,
12 right?

13 A. Right. Reservoir means the same thing in
14 the context of the 354 patent and the 355 patent.

15 Q. So, Shin does disclose a reservoir,
16 correct?

17 MR. CHEN: Objection. Mischaracterizing
18 the testimony.

19 THE WITNESS: Yes. Again, you're right
20 in retrospect, but I did not review the 354
21 declaration in any depth like I did the 355. So, I

1 wasn't -- I didn't recollect in preparation
2 for -- for this particular deposition that
3 Shin -- I considered Shin a reservoir in 354.
4 Again, the only reason that I brought Shin into 355
5 was in reference to the -- to the radiator.

6 BY MS. BHATTACHARYYA:

7 Q. So, in Shin, the -- the pump 5 is
8 connected to the heat sink 4 through a hose 6,
9 correct?

10 A. Yes. I'm going to open up Shin again
11 just to make sure that -- I will open Shin. Okay.
12 Let me blow this up.

13 Q. Take your time, Dr. Hodes.

14 A. Yes. So, in Shin, the -- the cold plate
15 4 is connected to the pump via inlet 10, and then
16 the coolant flows through the cold plate and out
17 17.

18 Q. And in the declaration that you submitted
19 with the 354 patent, which is marked as Exhibit
20 2015, you testified that the pump 5 of Shin and the
21 heat -- heat sink 4, which are connected by a hose,

1 together forms a reservoir, correct?

2 A. Yes. I'd have to verify it again, but
3 that's my recollection of what I just read in my
4 declaration for 354.

5 Q. And in Shin, the pump 5 and heat sink 4,
6 along with hose 6, form a reservoir even though
7 there is a vibration-dampening component 19 between
8 the pump and the heat sink, correct?

9 A. I'm just going to look at my declaration
10 in 354 again. I just don't remember 354. I'm just
11 scrolling through it.

12 (Whereupon, there was a pause for
13 document examination.)

14 THE WITNESS: It's going to take me a
15 moment to find the relevant page that we were on,
16 that I was looking at before in Shin.

17 BY MS. BHATTACHARYYA:

18 Q. I can tell you we were looking at
19 paragraph 58.

20 A. Okay.

21 Q. So that might help you.

1 A. Sure. Let me go back to paragraph 58.

2 (Whereupon, there was a pause for
3 document examination.)

4 THE WITNESS: Yes, that's what I stated
5 clearly in paragraph 58.

6 BY MS. BHATTACHARYYA:

7 Q. Let's go to paragraph 62 of Exhibit 2015.

8 A. Okay. Okay.

9 Q. In your opinion, impeller case 11 of Shin
10 forms the upper chamber, correct?

11 A. Let me just read it.

12 (Whereupon, there was a pause for
13 document examination.)

14 THE WITNESS: Yes.

15 BY MS. BHATTACHARYYA:

16 Q. And heat sink 4 forms the lower chamber
17 of the alleged reservoir in Shin, correct?

18 A. Let me just read.

19 (Whereupon, there was a pause for
20 document examination.)

21 THE WITNESS: Yes. Heat sink 4 in Shin

1 forms the lower chamber; correct.

2 BY MS. BHATTACHARYYA:

3 Q. Now, let's go back to paragraph 58 of
4 Exhibit 2015 and the annotation.

5 A. Okay. I'm there.

6 Q. Okay. Impeller case 11, which is the
7 alleged upper chamber of the reservoir, and heat
8 sink 4, which is the alleged lower chamber of the
9 reservoir in Shin, are separated by the
10 vibration-dampening member 19 and the pump motor
11 12, right?

12 A. Right.

13 Q. Have you looked at any of CoolIT's liquid
14 cooling products?

15 A. No. I have not received any samples of
16 CoolIT's products. I glanced at their website, but
17 I wouldn't recognize the product if you put one in
18 front of me as their product.

19 Q. Have you looked at any of Asetek's liquid
20 cooling products?

21 A. No, I have not. Again, I have glanced at

1 the two websites just to find out who the companies
2 were, but -- and maybe just glanced at photos, but
3 I don't even remember what they look like.

4 Q. Does your research work in the field of
5 thermal management involve liquid cooling of
6 electronics?

7 A. Yes, it does.

8 Q. And what type of liquid cooling
9 technologies have you worked on?

10 A. I have worked on direct liquid cooling
11 predominantly where the coolant in my research in
12 the form of liquid metal or water flows directly
13 through the -- the integrated circuit, the silicon,
14 as opposed to indirectly with the cooling of
15 interest here.

16 Q. Have you ever worked on an indirect
17 liquid cooling technology for cooling electronics?

18 A. So, my research has been focused in
19 recent years on direct liquid cooling, but I have
20 certainly used cold plates for indirect liquid
21 cooling in the lab and am very familiar

1 with -- with them.

2 Just to add a little bit of context. In
3 direct liquid cooling, the fluid is routed through
4 the semiconductor material, and an indirect liquid
5 cooling is routed through a cold plate attached to
6 it. It's the same basic principle in terms of the
7 fluid mechanics and the transfer that govern how
8 effective a particular design is.

9 Q. Have you ever worked on or developed an
10 all-in-one liquid cooling device that involves
11 integration of a pump and heat exchanger?

12 A. I do have a lot of -- so, in -- in liquid
13 metal cooling, whether it's direct or indirect, the
14 pump is often -- yeah, in liquid metal cooling, the
15 pump is using -- it's usually a -- it can be a
16 magnetohydrodynamic pump, but it's still -- I
17 didn't work on liquid metal cooling, an all-in-one
18 system where it had developed a prototype or a
19 commercially-viable item that had that feature,
20 but, again, I'm very familiar with heat exchangers,
21 pumps, and so-called microchannel cooling, but I

1 haven't personally worked on an all-in-one aspect
2 of it.

3 MS. BHATTACHARYYA: I may actually be
4 done with this business. Let me take a very short,
5 a couple-minute break, and I'll -- when I come
6 back, I will confirm if I have any more questions.

7 THE WITNESS: Okay.

8 MS. BHATTACHARYYA: I'll be back in just
9 a few minutes.

10 THE WITNESS: Okay.

11 MR. CHEN: Sure.

12 MS. BHATTACHARYYA: Can we take a break?

13 THE COURT REPORTER: Yes.

14 MR. CHEN: Yes, please. Thank you.

15 (Recess taken -- 2:43 p.m.)

16 (After recess -- 2:46 p.m.)

17 MS. BHATTACHARYYA: I don't have any
18 further questions for this witness.

19 MR. CHEN: Okay. Thank you. So, we
20 intend to redirect, and we'll take a break before
21 proceeding with our redirect.

1 MS. BHATTACHARYYA: We just took a break.

2 Can you start now, Mr. Chen?

3 MR. CHEN: No. I -- I have to take a
4 break before I do my redirect. So, it won't be
5 long. Maybe 30 minutes, at the most.

6 MS. BHATTACHARYYA: I'm sorry, how long?
7 You said you need 30 minutes?

8 MR. CHEN: Yeah.

9 MS. BHATTACHARYYA: That's an awfully
10 long time, but --

11 MR. CHEN: It probably won't take that
12 long, but, I mean, I'm just saying -- I'm just
13 being safe. So, I'll be back as soon as possible,
14 okay?

15 MS. BHATTACHARYYA: Well, okay.

16 MR. DYER: Can I just interject real
17 quick? Rather than waiting 30 minutes for everyone
18 to come back, why don't -- Kyle, perhaps you could
19 just text Arpita when you're ready, and everyone
20 else assume we'll be back in 15 minutes.

21 MR. CHEN: Yeah, sure. I'll be

1 back -- we'll be back as soon as possible.

2 MR. DYER: My point is if you're not
3 back -- yeah, okay.

4 MS. BHATTACHARYYA: No problem.

5 MR. CHEN: Thank you.

6 (Recess taken -- 2:48 p.m.)

7 (After recess -- 3:20 p.m.)

8 EXAMINATION

9 BY MR. CHEN:

10 Q. Good afternoon, Dr. Hodes. Oh, we can't
11 hear you for some reason.

12 A. Oh, good afternoon.

13 Q. Okay. So, could you turn to Exhibit No.
14 2015?

15 A. Sure. It is still open.

16 Q. What is Exhibit No. 2015?

17 A. It is my declaration related to the 354
18 patent.

19 Q. Okay. Could you turn to paragraph 58?

20 A. Sure. Okay. I'm at paragraph 58.

21 Q. Do you recall earlier Counsel talked to

1 you about paragraph 58?

2 A. Yes.

3 Q. Do you have any clarification that you
4 would like to make about that paragraph?

5 A. I'm just going to read it. Based on
6 these disclosures, in my opinion, a POSITA would
7 understand that Shin discloses or suggests a
8 reservoir, the structural combination of heat sink
9 4, flexible hose 6, coolant discharge section
10 coupler 7, water supply coupler 9, and impeller
11 case 11, configured to circulate a cooling liquid
12 there-through. These elements are shown in Figure
13 1 and 2.

14 So, I go on to say, Accordingly
15 Batchelder, in view of Shin, discloses this
16 limitation. So, the only thing that I would add to
17 what I said previously is that if you look at
18 Figure 2 on page 20, you can see the recirculation
19 of the coolant from the pump chamber to the thermal
20 exchange chamber, and the claim under consideration
21 is a reservoir configured to circulate the cooling

1 liquid there-through the reservoir including.

2 So, the reason that it added the material
3 from Shin to Batchelder is simply that if you look
4 at Figure 2 and Figure 1 on page 23, it better
5 indicates the recirculation path in Batchelder, but
6 I -- I personally saw the recirculation path in
7 Batchelder, but Shin is directed -- the addition of
8 Shin is -- is directed at the portion of Claim 1A
9 in the context where it says a reservoir configured
10 to circulate a cooling liquid there-through the
11 reservoir including. So, Shin in and of itself
12 would not be the reservoir. That's all I would
13 like to add.

14 MR. CHEN: Okay. Thank you, Dr. Hodes.
15 I'm done.

16 MS. BHATTACHARYYA: I'll re-cross.

17 REEXAMINATION

18 BY MS. BHATTACHARYYA:

19 Q. Dr. Hodes, during the 30-to-35-minute
20 break that we took between the cross-examination
21 and redirect by Mr. Kyle Chen, did you discuss the

1 substance of the testimony that you gave on
2 redirect with Mr. Chen?

3 A. Yes.

4 Q. Did Mr. Chen --

5 MR. CHEN: I want to caution --

6 BY MS. BHATTACHARYYA:

7 Q. -- tell you the question that you were
8 going to be asked?

9 MR. CHEN: I would like to caution the
10 witness not to reveal any attorney/client
11 privileged communication.

12 MS. BHATTACHARYYA: Mr. Chen, that's
13 inappropriate. Dr. Hodes is not your client.

14 BY MS. BHATTACHARYYA:

15 Q. Dr. Hodes, you can answer my question.
16 Do you want me to repeat it?

17 A. Yes.

18 Q. Did Mr. Kyle Chen tell you the question
19 that he was going to ask you on redirect?

20 A. I'm trying to remember to be honest with
21 you. We discussed the matter that I just opined

1 on. I'm trying to remember if he -- if he -- the
2 question that he just asked was, do you wish to
3 clarify anything about what was discussed
4 previously?

5 MR. CHEN: Again, I would like to caution
6 Dr. Hodes not to reveal any privileged
7 communications.

8 MS. BHATTACHARYYA: Mr. Chen, that is
9 inappropriate. Please stop coaching the witness.
10 There is no privilege -- attorney/client privilege
11 between you and Dr. Hodes.

12 MR. CHEN: I am not coaching the witness.
13 There is privilege in terms of the communication
14 between Dr. Hodes and me.

15 MS. BHATTACHARYYA: You are wrong.

16 MR. CHEN: I disagree, but --

17 MS. BHATTACHARYYA: I am entitled to know
18 the substance of your communication with Dr. Hodes.

19 BY MS. BHATTACHARYYA:

20 Q. Dr. Hodes, you can answer my question.
21 Do you want me to repeat it?

1 A. Sure. Please repeat it.

2 Q. Did Mr. Kyle Chen tell you the question
3 that he was going to ask you on redirect?

4 A. I don't recall him telling me precisely
5 the question, but we discussed that the redirect
6 would enable me to clarify views.

7 Q. Did he tell you that -- and by he, I mean
8 Mr. Chen. Did Mr. Chen tell you that you should
9 clarify on redirect your views regarding --
10 regarding paragraph 58 of Exhibit 2015?

11 A. We discussed the substance of what I
12 clarified during that meeting, and I knew that I
13 would be given the opportunity to clarify.

14 Q. Did Mr. Chen tell you he wanted you to
15 clarify that Shin does not disclose a reservoir?

16 A. We discussed precisely the issues that I
17 clarified, and then I viewed it as necessary to
18 clarify them based on those discussions.

19 Q. What did Mr. Kyle Chen tell you during
20 your meeting with him between my cross and his
21 redirect?

1 A. We had an exchange about the --

2 MR. CHEN: I would like to caution the
3 witness not to reveal privileged communication.
4 That is not proper.

5 MS. BHATTACHARYYA: Mr. Chen, you should
6 stop with your basis objections. If you continue,
7 I'll call the Board.

8 BY MS. BHATTACHARYYA:

9 Q. Dr. Hodes, please answer my question.

10 A. I mean, I have been cautioned repeatedly
11 not to reveal attorney/client privileged
12 information, so I'm going to stop here.

13 Q. As I said, there is no attorney/client
14 privilege between you, an expert, and Mr. Kyle
15 Chen, who is CoolIT's Counsel. Mr. Chen knows
16 that, too. So, if you are going to refuse to
17 answer, I'll have to call the Board.

18 May I remind you, Dr. Hodes, you are also
19 under oath here.

20 MR. DYER: May I make a suggestion,
21 folks? Why don't, Arpita, you and Kyle figure this

1 out rather than putting Dr. Hodes in a position of
2 being a legal expert? I don't know the answer to
3 this question, I'm sorry, off the top of my head,
4 but I think if you need to get the Board involved,
5 you should do that rather than putting him in the
6 middle. That seems to be the appropriate avenue.

7 MS. BHATTACHARYYA: Or he can just answer
8 the question, and if Mr. Chen thinks that there
9 is -- this was not appropriate, he can either show
10 me the rules, he can show me the case law, he can
11 deal with it later, too. So, there's no point in
12 holding up this deposition right now.

13 MR. DYER: I'm trying to be efficient
14 here.

15 THE WITNESS: Again, I'm kind of stuck in
16 the middle. I -- I'd rather have consensus among
17 the attorneys before I proceed further.

18 MS. BHATTACHARYYA: Mr. Chen, are you
19 instructing the witness not to answer my question?

20 MR. CHEN: I'm instructing the witness
21 not to reveal privileged communication. I'm not

1 instructing the witness not to answer your
2 question. I'm cautioning the witness not to reveal
3 privileged communication. That's all I did.

4 MS. BHATTACHARYYA: Mr. Chen, you're
5 confusing Dr. Hodes on what is privileged and what
6 is not.

7 My question to him was to tell me what
8 was discussed between you and Dr. Hodes, and he
9 doesn't know what is privileged and what is not.
10 So, our position is there is no privilege, so he
11 can answer the question.

12 MR. CHEN: I disagree with you, but you
13 can keep asking the question.

14 MS. BHATTACHARYYA: Well, he's not
15 answering it, so are you instructing him not to
16 answer?

17 MR. CHEN: I am not instructing him not
18 to answer, but if he's not answering it, I'm not,
19 you know, going to force him to answer it. You can
20 rephrase your question to make him more comfortable
21 in answering the question, but right now I think my

1 instruction is perfectly proper, that he should not
2 disclose privileged communication.

3 MS. BHATTACHARYYA: I'll ask my question
4 again. If Dr. Hodes does not answer the question,
5 I'll call the Board.

6 THE WITNESS: Okay.

7 BY MS. BHATTACHARYYA:

8 Q. What did Mr. Kyle Chen tell you during
9 your meeting with him in the break between my
10 cross-examination and his redirect?

11 A. We discussed the fact that in my
12 declaration, Shin was an additional means to make
13 the recirculation in Batchelder clear.

14 Q. Did Mr. Chen tell you he wanted you to
15 clarify that Shin does not disclose a reservoir?

16 A. He made a -- we discussed the fact that
17 in my declaration, Shin was to further explain
18 Batchelder and the fact that my original position
19 on Shin not disclosing a reservoir in and of itself
20 was -- was valid.

21 Q. Let's go to paragraph 96 of Exhibit 2015.

1 A. Okay. Sure. I'm there whenever you're
2 ready.

3 Q. In paragraph 96 of Exhibit 2015, which is
4 your declaration against Asetek's 354 patent, you
5 said, Shin discloses or suggests a radiator (heat
6 exchange section comprising heat exchangers 27, 28,
7 and 29 as shown in Figure 3) spaced apart from and
8 fluidly coupled to the reservoir (via 13 and 16, as
9 shown in Figures 2 and 3). Do you see that?

10 A. Yes.

11 MR. CHEN: Objection. This is beyond the
12 scope of the redirect. You're not entitled to ask
13 questions beyond the scope of the redirect.

14 We were talking about paragraph 58. This
15 is paragraph 96. You never mentioned 96; neither
16 did I.

17 BY MS. BHATTACHARYYA:

18 Q. Dr. Hodes, you can answer.

19 A. Correct.

20 MR. CHEN: I would move to strike this
21 portion of the testimony. This is clearly outside

1 of the scope of the redirect.

2 MS. BHATTACHARYYA: Mr. Chen, again, can
3 you stop with your speaking objections? We
4 discussed what the reservoir is or not in Shin
5 during your redirect, so I am asking him a question
6 or I'm about to ask him a question about the
7 reservoir of Shin which was clearly discussed
8 during redirect.

9 BY MS. BHATTACHARYYA:

10 Q. Let me repeat my question.

11 MR. CHEN: Note my objection. I stand by
12 my objection, but go ahead. Ask your question.

13 BY MS. BHATTACHARYYA:

14 Q. In paragraph 96 of Exhibit 2015, you are
15 referring to the reservoir in Shin, correct?

16 MR. CHEN: Mischaracterizing testimony.
17 The document speaks for itself.

18 THE WITNESS: I'm just reading it again.
19 Shin discloses or suggests a radiator spaced apart
20 from and fluidly coupled to the reservoir.

21 So, my opinion on that one is to the

1 extent that you consider what's shown in Figures 1
2 and 2 to constitute the reservoir in Shin, that I
3 am talking about the radia- -- the radiator in
4 reference to what's shown in Figures 1 and 2 of
5 Shin; correct.

6 BY MS. BHATTACHARYYA:

7 Q. But that sentence in paragraph 96 of
8 Exhibit 2015 discusses Shin disclosing the
9 reservoir that's claimed in Asetek's patents,
10 correct?

11 A. So, I -- when I wrote this part of the
12 declaration, my intent -- I'm just looking at what
13 claim it's in reference to.

14 I mean, the context of this particular
15 paragraph 96 is about the radiator being a part
16 separated by conduits, if you will, from the
17 reservoir. I wasn't worried during this part of
18 the declaration as to whether or not Shin in and of
19 itself discloses a reservoir. I was worried
20 about -- I wanted to get across the point that
21 there was a radiator that was separated from -- by

1 conduit, substantial lengths of conduit what we
2 consider the reservoir, and what we considered the
3 reservoir relates to this -- to the discussion here
4 in paragraph 58 where my point was that Batchelder
5 in and of itself discloses the reservoir in my
6 opinion, but to make absolutely certain that the
7 circulation part of the reservoir was clear, you
8 could combine -- you could cap Shin on to
9 Batchelder.

10 So, I mean, the earlier part of
11 the -- the declaration was about what constituted
12 a -- constitutes a reservoir. This part of the
13 declaration is about the radiator being separate
14 from the integrated pump and thermal exchange
15 chamber. It's not really about defining the
16 reservoir.

17 So, I -- I do refer to Shin having a
18 reservoir, as you said, for sure, but to me,
19 that -- that reservoir is fairly loosely defined
20 here. It's -- you know, Shin in and of itself
21 doesn't disclose a reservoir the way we've

1 construed it, but I'm viewing it as a reservoir for
2 the purposes of showing that the radiator is
3 separated by a substantial physical distance from
4 the reservoir, which is in this context the
5 combination of the thermal exchange chamber and the
6 pump chamber.

7 Q. Let's go to paragraph 99 of Exhibit 2015.

8 A. Okay.

9 Q. Specifically we can go to the part of
10 paragraph 99 which is on page 50 of your
11 declaration, Exhibit 2015.

12 A. Okay. Sure. I'm on page 50.

13 Q. Do you see the sentence starting with,
14 Moreover? It says, Moreover, Shin teaches coupling
15 the radiator to the reservoir (to circulate liquid
16 away) and to space it apart from the reservoir (to
17 divert heat away from the reservoir), do you see
18 that?

19 A. Yes, I do.

20 Q. Here again in paragraph 99 of Exhibit
21 2015, you are referring to Shin having a reservoir,

1 correct?

2 A. Yes, I am. But I would respectfully add
3 this part of the declaration is not about defining
4 what constitutes a reservoir. It's about having a
5 radiator that is not part of that all-in-one system
6 that is some distance away from the reservoir
7 separated by conduit.

8 I mean, I would say when I wrote this
9 portion of the declaration, I mean the term
10 reservoir to be the combination of the pump chamber
11 and the thermal exchange chamber.

12 You know, in Shin, et al., they're not
13 completely integrated. There's conduit -- there's
14 tubing between them, so I'm talking about the
15 reservoir as I viewed the reservoir in the context
16 of Batchelder, that's supported by Shin, to
17 emphasize the circulation part. So, it's -- that's
18 what I had in mind when I wrote this part of the
19 declaration.

20 Q. But your report specifically defines
21 reservoir as the parties stipulated to, correct?

1 A. Yeah. My -- my declaration defines
2 reservoir as a single receptacle defining a fluid
3 flow path. I didn't view Shin in and of itself as
4 a single receptacle.

5 Q. Did you discuss with Mr. Kyle
6 Chen -- strike that.

7 At the break that we had between my
8 cross-examination and your redirect by Mr. Kyle
9 Chen, did you discuss the fact that your 354
10 declaration said Shin discloses a reservoir?

11 A. We discussed what was disclosed in terms
12 of what constitutes a reservoir in the context of
13 Batchelder and more unambiguously stated in the
14 context of Batchelder and Shin because Claim
15 1A -- it goes to Claim 1A on page 58-ish. I'm just
16 scrolling through here. Hold on a second.

17 (Whereupon, there was a pause for
18 document examination.)

19 THE WITNESS: I'm trying to find 58. I
20 think I'm way out -- I'm in the wrong place. Hold
21 on a second. I was going to page 58 rather than

1 paragraph 58, that was the problem.

2 Yeah. So, under paragraph 51, I said a
3 reservoir configured to circulate a cooling liquid
4 there-through the reservoir including. So, we
5 discussed that insofar as circulating, the
6 circulation was clearer in Shin than it was in
7 Batchelder, although I found it to be sufficiently
8 clear in Batchelder in and of itself. I just added
9 the material in Shin to be completely unambiguous.
10 And -- and then we discussed that Shin in and of
11 itself didn't disclose a reservoir. We only
12 latched Shin on to Batchelder for that purpose that
13 I just discussed.

14 BY MS. BHATTACHARYYA:

15 Q. You don't say anywhere in your
16 declaration for the 354 patent in paragraphs 96, 99
17 or elsewhere that you are deviating from the
18 parties' stipulated meaning of reservoir, right?

19 A. That's -- yeah, I don't recall -- I
20 don't -- I don't do that; correct. Again, I wasn't
21 focusing my thoughts on the definition of the term

1 reservoir when I wrote that latter part of the
2 declaration around 99.

3 I was focusing on the fact that I wanted
4 to show in the prior art that there was a radiator
5 distant from the compact pump/heat sink assembly.

6 My motivation there was -- was simply
7 that both Shin and Batchelder were talking about
8 more compact cooling solutions, and in Shin, who is
9 addressing the same problem as Batchelder, the need
10 for more compact, quieter, lower cost,
11 easy-to-assemble liquid cooling solutions.

12 In Shin, it was made clear that there was
13 a radiator that was not part of that compact
14 structure.

15 MS. BHATTACHARYYA: I have no further
16 questions for this witness.

17 MR. CHEN: Yes, so I have a couple more
18 questions.

19 | RE-EXAMINATION

20 BY MR. CHEN:

21 0 So Dr Hodes --

1 A. Yes.

2 Q. -- can you turn to paragraph 99 of
3 Exhibit 2015, which is on page 49?

4 A. Yes.

5 Q. Could you please read that into the
6 record?

7 A. Sure. Given the well-documented need in
8 the prior art for managing heat emitted from
9 electronic components, a radiator is an obvious
10 additional component because the main purpose of a
11 radiator is dispersing heat that accumulates. For
12 example, a POSITA would have known how to, and
13 would have been motivated to, modify Batchelder in
14 view of Shin to connect Batchelder's reservoir to
15 an outside or external radiator and a fan as
16 follows:

17 This is because the POSITA would have
18 been motivated to combine Shin with Batchelder to
19 further increase the heat management efficiency by
20 using an outside or external radiator such that the
21 liquid coolant flows upward while snaking through

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1 the inside of the heat exchanger as shown by 28 and
2 29. This technique implements a radiator to allow
3 heat to escape the system. Moreover, Shin teaches
4 coupling the radiator to the reservoir to circulate
5 liquid away and to space it apart from the
6 reservoir to defer heat away from the reservoir.
7 Adding a radiator to Batchelder would be an obvious
8 modification to improve Batchelder's objective of
9 cooling electronic components.

10 Therefore, Batchelder in view of Shin
11 renders obvious all limitations of Claim 1.

12 Q. Now, in the first part on page 49 in
13 paragraph 99, --

14 A. Yes.

15 Q. -- which prior art did you refer to
16 regarding reservoir?

17 A. Batchelder.

18 Q. With respect to today's testimony, whose
19 opinion is that?

20 A. It's my opinion.

21 MR. CHEN: I don't have any further

1 questions.

2 MS. BHATTACHARYYA: One more
3 question --

4 THE WITNESS: Sure.

5 MS. BHATTACHARYYA: -- on re-cross.

6 THE WITNESS: Sure.

7 RE-EXAMINATION

8 BY MS. BHATTACHARYYA:

9 Q. Dr. Hodes, do you consider yourself a
10 POSITA, that is a person of ordinary skill in the
11 art, in the field of computer liquid cooling?

12 MR. CHEN: It is outside the scope of the
13 redirect. It's improper.

14 THE WITNESS: I consider myself --

15 MR. CHEN: Objection.

16 BY MS. BHATTACHARYYA:

17 Q. Go ahead, Dr. Hodes. You can answer the
18 question.

19 A. Okay. I consider myself an expert. I
20 would state that I vastly exceed what's necessary
21 to constitute a POSITA as described in my

1 declaration in the sense that I said that a POSITA
2 would have a bachelor's degree in mechanical or
3 electrical engineering and a few years of
4 experience in liquid cooling systems.

5 You know, I had -- I had that bachelor's
6 degree, and then I had a master's degree, which
7 also related to -- to two-phase cooling which
8 involves liquid cooling, and then I have about -- I
9 started getting interested in liquid cooling, I'd
10 say, nearly 20 years ago, and I have been working
11 on it or, you know, my first patent on it was in
12 the early 2000s. I would have to go check. It's
13 on my CV if you want me to check.

14 MS. BHATTACHARYYA: No further questions
15 for the witness.

16 MR. CHEN: Nothing here either.

17 (Whereupon, the deposition Marc Hodes,
18 Ph.D. was concluded at 4:01 p.m., and the reading
19 and signing of the transcript was not waived.)

20
21

1 State of Maryland

2 County of Baltimore, to wit:

3 I, Michele D. Lambie, a Notary Public of
4 the State of Maryland, County of Baltimore, do
5 hereby certify that the within-named witness
6 personally appeared via Zoom before me at the time
7 and place herein set out, and after having been
8 duly sworn by me, according to law, was examined by
9 counsel.

10 I further certify that the examination
11 was recorded stenographically by me and this
12 transcript is a true record of the proceedings.

13 I further certify that I am not of
14 counsel to any of the parties, nor related to any
15 of the parties, nor in any way interested in the
16 outcome of this action.

17 As witness my hand this 3rd day of
18 November, 2020.

19
20 

21 Michele D. Lambie

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1 | Kyle D. Chen, Esquire

2 kchen@gtlaw.com

November 5, 2020

4 RE: Coolit Systems, Inc. v. Asetek Danmark A/S

5 11/2/2020, Marc Hodes, Ph.D. (#4307734)

6 The above-referenced transcript is available for
7 review.

8 Within the applicable timeframe, the witness should
9 read the testimony to verify its accuracy. If there are
10 any changes, the witness should note those with the
11 reason, on the attached Errata Sheet.

12 The witness should sign the Acknowledgment of
13 Deponent and Errata and return to the deposing attorney.
14 Copies should be sent to all counsel, and to Veritext at
15 cs-midatlantic@veritext.com

17 Return completed errata within 30 days from
18 receipt of transcript.

19 If the witness fails to do so within the time
20 allotted, the transcript may be used as if signed.

22 Yours,

23 | Veritext Legal Solutions

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2 Marc Hodes, Ph.D. (#4307734)

3 E R R A T A S H E E T

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21 REASON _____

22 _____

23 _____

24 Marc Hodes, Ph.D.

Date

25 _____

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1 Coolit Systems, Inc. v. Asetek Danmark A/S

2 Marc Hodes, Ph.D. (#4307734)

3 ACKNOWLEDGEMENT OF DEPONENT

4 I, Marc Hodes, Ph.D., do hereby declare that I
5 have read the foregoing transcript, I have made any
6 corrections, additions, or changes I deemed necessary as
7 noted above to be appended hereto, and that the same is
8 a true, correct and complete transcript of the testimony
9 given by me.

10

11

12

Marc Hodes, Ph.D.

Date

13

*If notary is required

14

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

VERITEXT LEGAL SOLUTIONS
COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

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